CLAIMS

1. A supported catalyst comprising a support having supported thereon at least one member selected from the group consisting of heteropolyacids and heteropolyacid salts, wherein the heteropolyacid and/or heteropolyacid salt is substantially present in the surface layer region to a depth of 30% from the support surface.

2. A catalyst according to claim 1, wherein 90 mass% or more of the heteropolyacid and/or heteropolyacid salt is present in the surface layer region to a depth of 30% from the support surface.

3. A catalyst according to claim 1 or 2, wherein the heteropolyacid is at least one member selected from the group consisting of silicotungstic acid, phosphotungstic acid, phosphomolybdic acid, silicomolybdic acid, silicovanadotungstic acid, phosphovanadotungstic acid, phosphovanadomolybdic acid, silicovanadomolybdic acid, phosphomolybdotungstic acid, silicomolybdotungstic acid, silicovanadotungstic acid, borotungstic acid, boromolybdic acid and tungstomolybdoboric acid.

4. A catalyst according to any one of claims 1 to 3, wherein the heteropolyacid salt is either an onium salt of a heteropolyacid or a salt resulting from partially or entirely substituting hydrogen atoms of a heteropolyacid by at least one element selected from metal elements belonging to Groups 1 to 13 in the Periodic Table (Revised Edition of IUPAC Inorganic Chemistry Nomenclature (1989)), and the heteropolyacid is selected from the group consisting of silicotungstic acid, phosphotungstic acid, phosphomolybdic acid, silicomolybdic acid, silicovanadotungstic acid, phosphovanadotungstic acid, phosphovanadomolybdic acid, silicovanadomolybdic acid, phosphomolybdotungstic acid, silicomolybdotungstic acid, silicovanadotungstic acid, borotungstic acid, boromolybdic acid and

tungstomolybdoboric acid.

5. A catalyst according to any one of claims 1 to 4, wherein the support is at least one member selected from the group consisting of silica, diatomaceous earth, montmorillonite, titania, activated carbon, silica alumina, alumina, magnesia, niobia and zirconia.

6. A catalyst according to any one of claims 1 to 5, wherein the particle size of the support is from 0.5 to 50 mm.

7. A catalyst according to any one of claims 1 to 6, wherein the specific surface area of the support is from 10 to 500 m^2/g and the pore volume is from 0.1 to 3.0 ml/g.

8. A process for producing a supported catalyst as described in any one of claims 1 to 7, comprising the following first to third steps:

First Step:

a step of dissolving a heteropolyacid and/or a heteropolyacid salt in a solvent corresponding to 10 to 40 vol% of the liquid absorption amount of a support to obtain a heteropolyacid and/or heteropolyacid salt solution having a kinematic viscosity of 2.0 to 15.0 cSt (at 40°C);

Second Step:

a step of impregnating a support with the heteropolyacid and/or heteropolyacid salt solution obtained in the first step to obtain a heteropolyacid and/or heteropolyacid salt-impregnated support; and

Third Step:

a step of drying the heteropolyacid and/or heteropolyacid salt-impregnated support obtained in the second step to obtain a heteropolyacid and/or heteropolyacid salt-supported catalyst.

9. A process according to claim 8, wherein the solvent is a polar solvent.

10. A process according to claim 9, wherein the polar solvent is any one of a lower aliphatic carboxylic

acid, a lower aliphatic alcohol or a mixture thereof.

11. A process, for producing a compound, comprising performing a reaction in the presence of a supported catalyst as described in any one of claims 1 to 7.

12. A process according to claim 11, wherein the reaction is at least one reaction selected from the group consisting of an isomerization reaction, an oxidation reaction, a hydration reaction, a dehydrogenation reaction, an ether-producing reaction, an esterification reaction, a conversion reaction, an acylation reaction, a Ritter reaction and an alkylation reaction.

13. A process according to claim 11 or 12, wherein a lower aliphatic olefin and an oxygen are reacted to produce a lower aliphatic carboxylic acid.

14. A process according to claim 13, wherein the reaction is performed in the presence of water.

15. A process according to claim 11 or 12, wherein a lower olefin and a lower aliphatic carboxylic acid are reacted to produce a lower aliphatic carboxylic acid ester.

16. A process according to claim 15, wherein the reaction is performed in the presence of water.

17. A lower aliphatic carboxylic acid produced by a process as described in claim 13 or 14.

18. A lower aliphatic carboxylic acid ester produced by a process as described in claim 15 or 16.